

AMENDMENTS TO THE SPECIFICATION

Please amend the heading on page 2, line 12 as follows:

DISCLOSURE SUMMARY OF THE INVENTION

Please amend the paragraph beginning on page 16, line 4 as follows:

BEST MODE FOR CARRYING OUT DETAILED DESCRIPTION OF THE
INVENTION

Please amend the paragraph beginning on page 41, line 5, as follows:

(1) On a rear surface of an inner-part edge portion of the dielectric substrate 10 on which the antenna elements A1 and A2 are formed, a floating conductor 11A is formed so as to be apart from the grounding conductor 11 by a predetermined distance "d" in the longitudinal direction of the dielectric substrate 10 and to be electrically isolated from the ~~connection~~grounding conductor 11. In this case, the floating conductor 11A is formed closely to the antenna elements A1 and A2 and the minute loop antenna A3 so as to be electromagnetically coupled with them.

Please amend the paragraph beginning on page 41, line 17, as follows:

In the antenna ~~element~~apparatus 105 as thus constituted, by switching the switch SW1 in ON or OFF state, grounding states of the antenna elements A1 and A2 through the dielectric substrate 10 are changed. In other words, when the switch SW1 is turned off, the floating conductor 11A is not grounded but electrically floats from the ground potential. Due to this, an influence of strip conductors serving as the minute loop antenna A3 and the antenna elements A1 and A2 that constitute the antenna apparatus 105 onto a potential change is relatively small. At this time, the antenna apparatus 105 has an antenna gain characteristic close to a characteristic shown as a vertically polarized wave component in Fig. 7. When the switch SW1 is turned on, the floating conductor 11A is connected to the grounding conductor 11 through the switch SW1 to be grounded. Therefore, the antenna apparatus 105 has an antenna gain characteristic close to a horizontally polarized wave component, where the antenna gain characteristic corresponds to

such a case that the metal plate 30 is located closely to the rear surface side of the dielectric substrate 10 of Fig. 7. In other words, by turning on or off the switch SW1, the directivity characteristic of the antenna apparatus 105 in the radiation direction and the direction of the plane of polarization can be switched over. In particular, the plane of polarization changes substantially by 90 degrees, and this leads to that a diversity effect can be attained and a communication performance of the radio communication circuit 20 can be greatly improved.

Please amend the paragraph beginning on page 65, line 13, as follows:

(2) The minute loop antenna A3a is constituted by forming the copper foil strip conductor on the front surface of the left-side edge portion of the dielectric substrate 10 by the printed wiring method. In the end portion as located near the ground side of the minute loop antenna A3a, the through-hole conductor 16a is formed by filling the conductor into the through hole which penetrates the dielectric substrate 10 in the thickness direction thereof. In addition, the through-hole conductor 17a is formed at the position near the through-hole conductor 16a so that the strip conductor of the minute loop antenna ~~A4a~~ A3a is sandwiched between the through-hole conductor 16a and the through-hole conductor 17a, by filling the conductor into the through hole which penetrates the dielectric substrate 10 in the thickness direction thereof. The end portion of the minute loop antenna A3a as located near the ground side is connected to the antenna element A2a through a strip conductor 16as formed on the rear surface of the dielectric substrate 10 and the through-hole conductor 17a.

Please amend the paragraph beginning on page 69, line 5, as follows:

Further, the strip conductor which constitutes the antenna element A2 is formed to extend to the position as located near the hole portion 72 of the dielectric substrate 10. A through-hole conductor 74 is formed at the position as located near the hole portion 72 by filling the conductor into the through hole which penetrates the dielectric substrate 10 in the thickness direction thereof. The end portion of the antenna element ~~A1~~ A2 is connected to connection conductors 82 on the rear surface of the dielectric substrate 10 through the through-hole conductor 74. The

connection conductors 82 are formed to sandwich the hole portion 72 between the connection conductors 82 on both sides of the hole portion 72 in the longitudinal direction of the dielectric substrate 10. In the connection conductors 82, conductor exposed portions 82p thereof each having a predetermined area are formed in the central portion, in which the hole portion 72 is sandwich between the conductor exposed portions 81p, and a resist pattern (not shown) is formed in portions other than the conductor exposed portions 82p so as to expose the conductor only in the conductor exposed portions 82p. Then only the respective conductor exposed portions 81p can be soldered.